

DESCRIPTIONS OF TWO NEW SPECIES OF *ACACIA*
FROM NEW SOUTH WALES.

BY R. T. BAKER, F.L.S., ASSISTANT CURATOR, TECHNOLOGICAL
MUSEUM, SYDNEY.

(Plates VIII.-IX.)

ACACIA DAWSONI, sp.nov.

(Pl. VIII.)

A dense, virgate shrub rarely exceeding 5 feet in height, with erect, terete branches, branchlets minutely pubescent, finally flattened or angular, with decurrent lines, showing minute resinous dots. Phyllodia narrow, linear, narrowed at both ends, straight or slightly falcate, obtuse or with a minutely recurved point, under 5 inches long, about 2 lines broad, rigid, many-nerved, the veins distinct, and one or two more prominent than the rest, anastomosing here and there, gland present on the upper edge at the base of the phyllode. Peduncles minutely pubescent, 1 line long, (4-6 forming a raceme much shorter than the phyllode), bearing each a few flowers (4-6), mostly 5-merous. Calyx about half the length of the corolla, deeply lobed, slightly pubescent. Petals glabrous, slightly ribbed, cohering to the middle at first, but eventually becoming free. Pod linear, straight or slightly curved, glabrous, under $2\frac{1}{2}$ inches long, 1 line broad, black; valves convex over the seeds, slightly constricted between them. Seeds elongated, longitudinal, funicle thickened under the seed, with one fold, becoming filiform towards the placenta.

Hab.—Rylstone only, just outside the town, near the angle formed by the Ilford and Glen Alice Roads, where it was first pointed out to me by Mr. J. Dawson, L.S., after whom I have named it.

I am of opinion that this species, in botanical sequence, comes in the Subseries *Oligoneura* of the Series *Plurinerves* of Bentham, as the phyllodia resemble those of *A. elongata* more than that of any other, and which species falls in that group. It differs from *A. elongata*, however, in the phyllodia being more elongated and less rigid, and drying a darker green; in the mode of inflorescence, and having considerably fewer flowers in the head; in its very narrow pod, and also in being a less attractive shrub than that species.

Except in the matter of the phyllodes above alluded to, it is by no means easy to particularise the affinities of this *Acacia* with the others of this group. Of the seven species described under the Subseries *Oligoneura*, it is allied perhaps more to *A. elongata* and *A. subporosa* (narrow-leaved variety), and I have, therefore, placed it between these two. It differs from both in its flowers being in racemes instead of on individual peduncles, and also in its having fewer flowers in the heads; and in this latter feature it appears to stand apart from any other *Acacia*—the number of flowers being so few. The individual flowers closely resemble those of *A. cincinnata*, F.v.M., but this species belongs to the Group *Julifera*. It is further distinguished from the two above named species by its calyx, petals, pods, arillus and funicle. I should not be surprised if another species or two will yet be discovered to connect it with the narrow-leaved variety of *A. subporosa*, F.v.M.

ACACIA DIFFORMIS, sp.nov.

(Plate IX.)

A small glabrous, shrubby tree, 20 to 30 feet (as far as seen), branchlets angular, very frequently quite flattened. Phyllodia oblanceolate, rigid, coriaceous, very obtuse, falcate in the narrow-leaved form, 3 to 5 inches long in the broad variety and 8 inches in the narrow-leaved variety, from 3 to 12 lines broad, one prominent nerve, with a secondary one between it and the upper edge, running from the base of the phyllode to the gland, and

continuing onward to near the apex, and so forming as it were an intramarginal vein. Sometimes it passes the first gland, and runs on to a second one near the middle of the phyllode. Very often the lower gland appears as though pathologically affected, and then the upper edge of the phyllode has quite a geniculate-shaped appearance. Racemes attenuated, shorter than the phyllodes, with about 15 to 20 small globular heads of about 20 flowers, mostly 5-merous, peduncles 2 to 3 lines. Calyx obtusely lobed, thick at the edges, which are covered with cilia. Petals united above the calyx, but eventually separating, glabrous, slightly ribbed. Pod 7 to 8 inches long, moniliform, valves thinly coriaceous, under 3 lines broad, convex over the seeds, much narrowed between them. Seeds elongated, longitudinal, funicle not folded, thickened under the seed into a club-shaped aril.

Hab.—Tocumwal; Cobar (Rev. J. M. Curran); Digilah, Merrygoen (H. A. Patrick); Bylong (R.T.B.).

This species pertains to the Section *Uninerves* of Bentham's Table and the Subsection *Racemosæ*, and, as will be seen, its alliance is essentially with *A. penninervis* and *A. microbotrya*; indeed the numerous foliage and bud specimens obtained from time to time from various localities bore such a striking resemblance to one of the forms of the former species that they were provisionally labelled *A. penninervis*, Sieb. I have a very complete series showing the variability of the first-named species, so that I am able to speak with some certainty in regard to the distinctive character or specific differences of this new species from either the type or varieties of *A. penninervis*, Sieb.

The "narrow-leaved" variety might easily be confused with a corresponding form of *A. penninervis* occurring at Mogo. The buds, too, are similar to those of *A. penninervis*. The secondary nerve is also present as in *A. penninervis*, but in this particular species, as above mentioned, it is continued onward almost to the apex after colliding as it were with the margin at one or other of the two glands. I have on rare occasions found this to occur also in some of the broad phyllodes of *A. penninervis*, Sieb. The characters which at once separate it from that species are the

long, attenuated, moniliform pod, the elongated seed, and the short filiform funicle. It is further distinguished from *A. penninervis* by its shrubby growth, being never recorded as a tree; by its remarkably flat branchlets; by the edges of the phyllodes being less nerve-like, and also by its sepals and petals.

In botanical sequence its place is between *A. penninervis*, Sieb., and *A. retinoides*, Schl.

It is one of the few Acacias exuding a soluble gum, and I am indebted to Mr. H. G. Smith, of the Technological Museum, for the following note on the chemistry of its gum:—

The gum occurring on this species is principally in globular masses of various sizes up to that of a pigeon's egg. Portions of the gum are quite transparent. The colour is mostly of a pale amber, although some portions are of a darkish brown. The gum breaks readily with a bright conchoidal fracture, and when coarsely powdered much resembles in appearance the better class of gums belonging to the arabin group. It is entirely soluble in two or three parts of cold water, with the exception of a small quantity of accidental impurity (bark, &c.). The mucilage formed is of fair viscosity, and strongly adhesive. The aqueous solution is acid to test paper, and is rather dark in colour; alumina, however, clears it sufficiently to allow the determination of its optical properties to be made; it was found to be levo-rotatory like the better class gums. When boiled with dilute sulphuric acid the solution becomes dextro-rotatory, most probably from the formation of Arabinose. Although the present specimen was found to have well-defined optical properties, yet it is often found that the Australian gums are optically inactive.

No precipitate was formed on adding neutral lead acetate, nor was there any alteration on the addition of ferric chloride, except a slight darkening of the solution. On heating with caustic soda the solution becomes yellowish to brownish.

The water present was found to be 13·35 per cent. The ash is small in quantity, being only ·88 per cent; this consists of the usual bases found in connection with arabic acid in most gums,

viz. :—Lime, magnesia (in about equal proportions) and potassium; traces of sulphuric and phosphoric acid were also detected.

Mucic acid was obtained in large quantity by oxidising with nitric acid, the amount being 35·65 per cent., being the mean of three closely agreeing determinations; much oxalic acid was also formed at the same time, that portion crystallising with the mucic acid being removed by alcohol; saccharic acid does not appear to be formed, except perhaps in traces. Australian gums often form large quantities of mucic acid on treatment with nitric acid.

The above results determine this gum to be of commercial value if obtainable in quantity; it may be classed with the second class wattle gums, of which that of *A. pycnantha* is a type. It very much resembles the gum obtained from *A. penninervis* and *A. microbotrya*, Benth.

EXPLANATION OF PLATES.

Plate VIII.

Acacia Dawsoni.

- Fig. 1.—Flowering spray.
- Fig. 2.—Portion of phyllode enlarged to show nervation.
- Fig. 3.—Bud (enlarged).
- Fig. 4.—Flower (enlarged).
- Fig. 5.—Pistil (enlarged).
- Fig. 6.—Pod (nat. size).
- Fig. 7.—Seed showing arillus (enlarged).

Plate IX.

Acacia difformis.